Installation & Service Manual

DPI Tester and Bypass unit
DPI TAB1

For all DPI Models
120V & 230V 50/60Hz

DIP-PROOFING
TECHNOLOGIES INC.
LEADERS IN VOLTAGE-DIP PROOFING

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Notice

IMPORTANT SAFETY INSTRUCTIONS.
SAVE THESE INSTRUCTIONS!

This manual contains important instructions that should be followed during installation of the DPI Tester & Bypass unit.

Introduction

The Voltage Dip Proofing Inverter (DPI) has become an industry standard for the elimination of process down time caused by momentary voltage sags and interruptions. Power Quality problems exist in all distribution systems and the DPI has been successful in overcoming the problem in a wide range of industries. In many cases the DPI is used in plant where preventative maintenance programmes are in place. As part of these programs it has become necessary to test the DPI to ensure that it is fully functional. This is a time consuming task even if bypass switches were installed together with the DPI. Qualified personnel are needed to perform the tests on the DPI using sophisticated test equipment. The time required to test a DPI ranges from 30 to 45 minutes depending on the location of the DPI and conditions at the plant.

The DPI Tester and Bypass (DPI TAB) has been developed to enable easy integration of the DPI into preventative maintenance schedules and eliminate the need for highly skilled personnel to perform the tests.

Description

The DPI Tester and Bypass (DPI TAB) consists of a bypass switch, monitoring electronics and a LCD display housed in an extruded aluminum enclosure. The DPI TAB acts as a standard bypass switch, monitors and displays the number of events served by the DPI since the last test, the total number of events served to date, the number of days that the DPI has been in service and the number of days that have elapsed since the last test was performed. The statistical information is displayed on one screen for ten seconds and alternated with another screen that displays the model number of the connected DPI and the supply voltage. To test the DPI switch to Bypass mode and after a delay of three seconds the test results will be displayed. The DPI TAB must be configured to test a specific DPI model when it is manufactured and is intended to be mounted permanently with that DPI model.

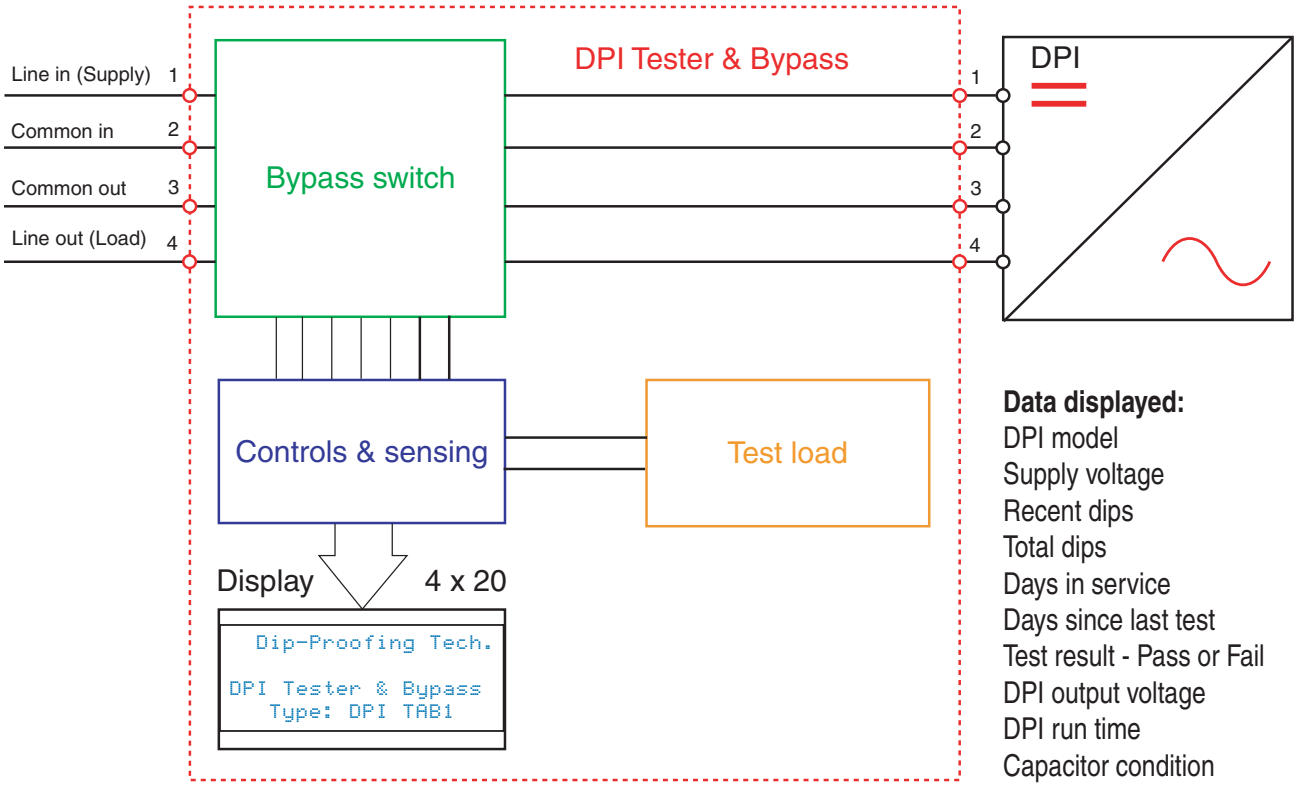


Fig 1
TAB1 Block Diagram

Specifications
DPI Tester & Bypass

MODEL	DPI TAB1
AC INPUT SUPPLY	
Single phase supply voltage:	120V or 230V 50/60Hz - Specify when ordering.
Maximum input voltage:	+10%
Burden:	7VA
TEST	
Time to test:	3 seconds approximately.
Capacitor value:	± 20% of nominal value - Pass. Out of range - Fail.
Inverter output voltage:	± 5% of nominal supply voltage - Pass. Out of range - Fail.
INDICATORS	
LCD:	4 lines x 20 character, backlit.
INFORMATION DISPLAYED	
DPI model	The DPI that the TAB is configured to test.
Supply:	Supply voltage.
Recent dips:	Events served since last test, reset after new test.
Total dips:	Events served since installation, cumulative, non volatile.
Days in service	Days that the DPI has been in operation, cumulative, non volatile.
Days since test:	Days since last test, reset after new test.
Test result:	Pass or Fail.
DPI output:	DPI inverter RMS output voltage at end of test period.
DPI run time:	DPI set run time (ms).
Capacitance:	Storage capacitor(s) measured value expressed as a % of nominal.
TEMPERATURE	
Maximum ambient working temperature:	45°C (113°F)
CUBICLE	
Construction:	Extruded Aluminum
Height:	298mm (11.73in)
Width:	150mm (5.90in)
Depth:	110mm (4.33in)
Mass:	2.7kg (5.9lbs)
CONNECTION	
Cable:	$5mm^2$ (10 AWG) copper panel wire
Screw terminal torque:	1.5 - 1.8 Nm (13 - 16 lb-in)
LISTINGS	
Underwriters Laboratories Inc:	not listed
ORDERING	
Specify:	The DPI model that is to be tested.

Installation Guide

1. Remove the unit from its packing
2. Place the unit horizontally on a bench and visually check for any mechanical damage. Ensure that all the casing screws are tight then shake the unit to check that there is nothing loose internally.

   Note : Please inform your shipping agent if any damage has occurred during transit : the damaged unit(s) and all packing material should be kept in case the insurers wish to inspect the damage.
3. Check that the rating label specifies the model number for the DPI that will be tested. WARNING: Never connect a 120V unit to a 230V supply. Ensure that the DPI model number & ratings match those on the TAB rating label.
4. Decide on the location where the unit is to be installed, this will probably be inside a switch gear panel, ensure that the display is easily visible.
5. Mount the unit vertically using M6 bolts.
6. Connect unit as shown in Fig 2 using 5mm^2 (10AWG) copper panel wire.
7. Apply terminal screw tightening torque of 1.5 - 1.8Nm (13 - 16 lb-in).

Power Wiring

Connect Line In (Supply) to Terminal 1
Connect Common Line in to Terminal 2
Connect Common Line out to Terminal 3
Connect Line Out (Load) to Terminal 4
Connect the ground screw(s) on the unit to the panel ground point.

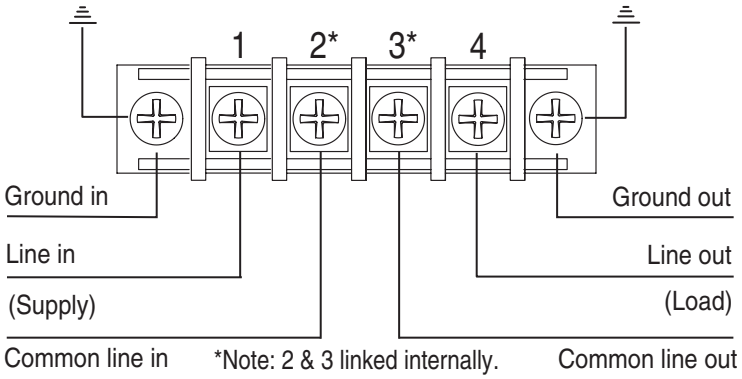


Fig 2
Power Wiring Diagram

8. Connect the DPI TAB to the DPI in a similar manner, refer to Fig 3 p 6.
9. Once the unit has been mounted and the external wiring completed, power can be applied.

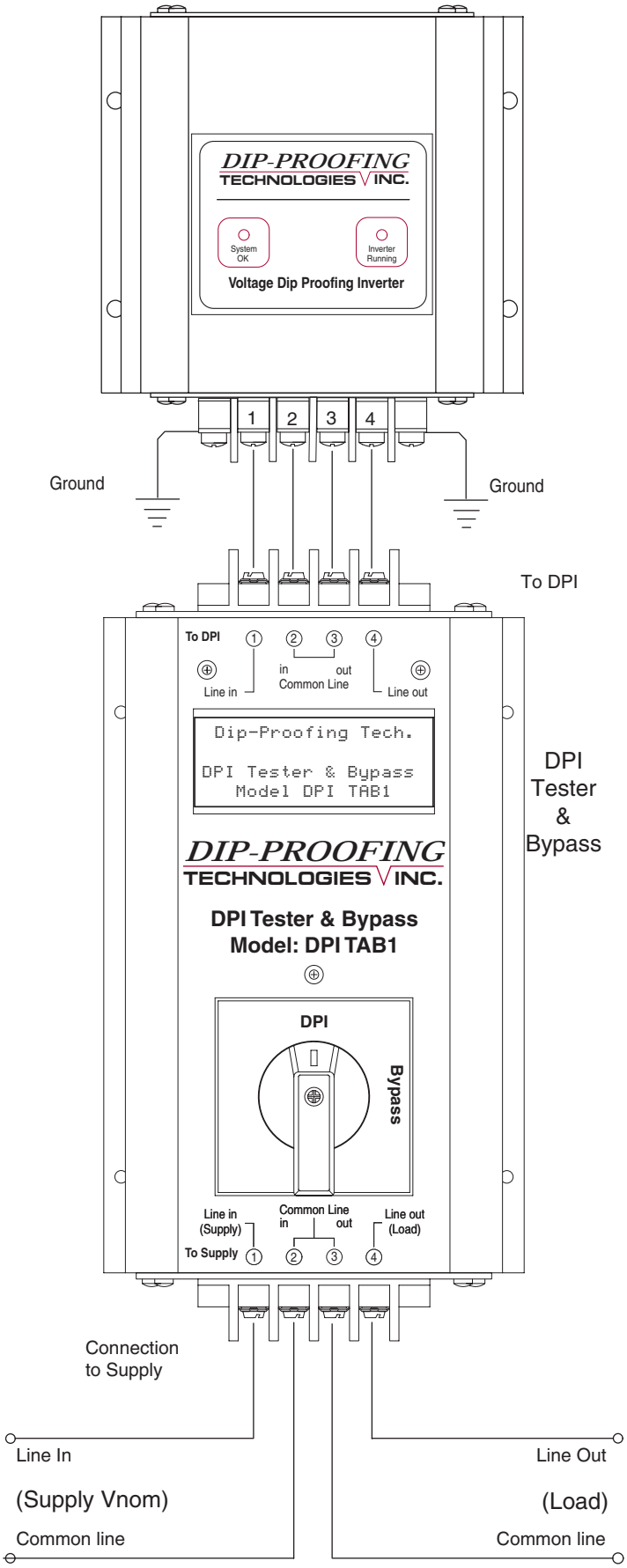


Fig 3

DPI Tester & bypass Connection Diagram

Operation

The DPI Tester and Bypass unit has three functions.

1. The TAB performs a test on the DPI to which it is connected to determine the condition of the energy storage capacitors, the run time setting and the inverter output voltage. The test is initiated by switching the Bypass switch from the “DPI” position to “Bypass”.

2. In addition to performing tests on the DPI the TAB also monitors the DPI installation collecting and displaying the following information.

Recent Dips: Number of events served since last test.

Total Dips: Total number of events served since installation.

Days in service: Total number of days that the DPI has been in operation.

Days since test: The number of days that have elapsed since the last test.

3. It functions as a conventional Bypass switch in applications where no-break maintenance is required. It connects the supply directly to the load, "Bypass" position, and disconnects the power terminals of the inverter without interrupting the supply. When in "DPI" position the load is connected to the supply via the DPI.

When the the TAB is connected to it’s matching DPI and first energized the following screens will be displayed:

Startup - displays for 2 seconds.

```
 Dip-Proofing Tech.

DPI Tester & Bypass
   Type: DPI TAB1
```

Run mode screen 1 - displays for 10 seconds, alternating with Run mode screen 2.

```
DPI Tester & Bypass
For use with DPI
Model: DPI52S25-12
Supply: 120Vac
```

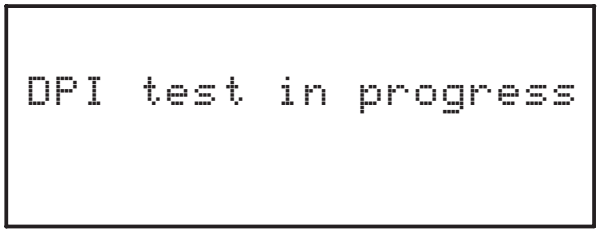
Run mode screen 2 - displays for 10 seconds, alternating with Run mode screen 1.

```
Recent dips:     xxxx
Total dips:      xxxx
Days in service:xxxx
Days since test:xxxx
```

As time passes the monitored data will display on the Run mode 2 screen.

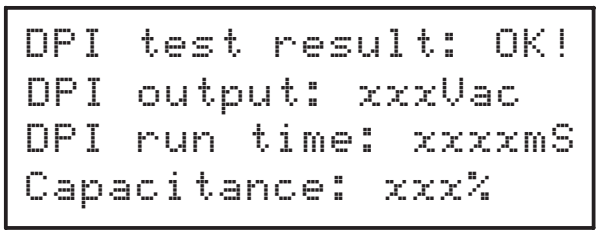
To initiate a test switch to Bypass mode. The display will show.

Displays for approximately 3 seconds.

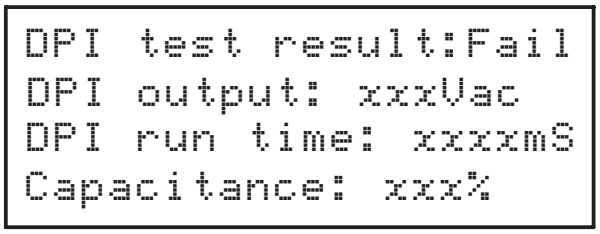


Test results display until the TAB is switched from Bypass to DPI.

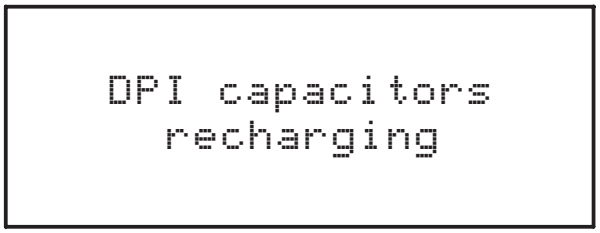
Test passed display.



Or test failed display.



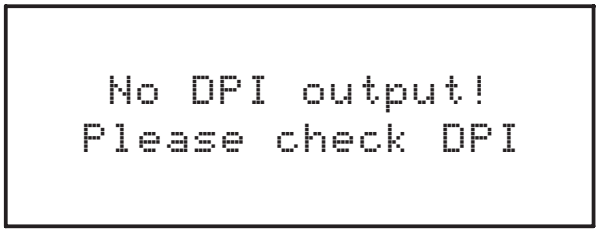
When switching from Bypass to DPI after a test the display will show.



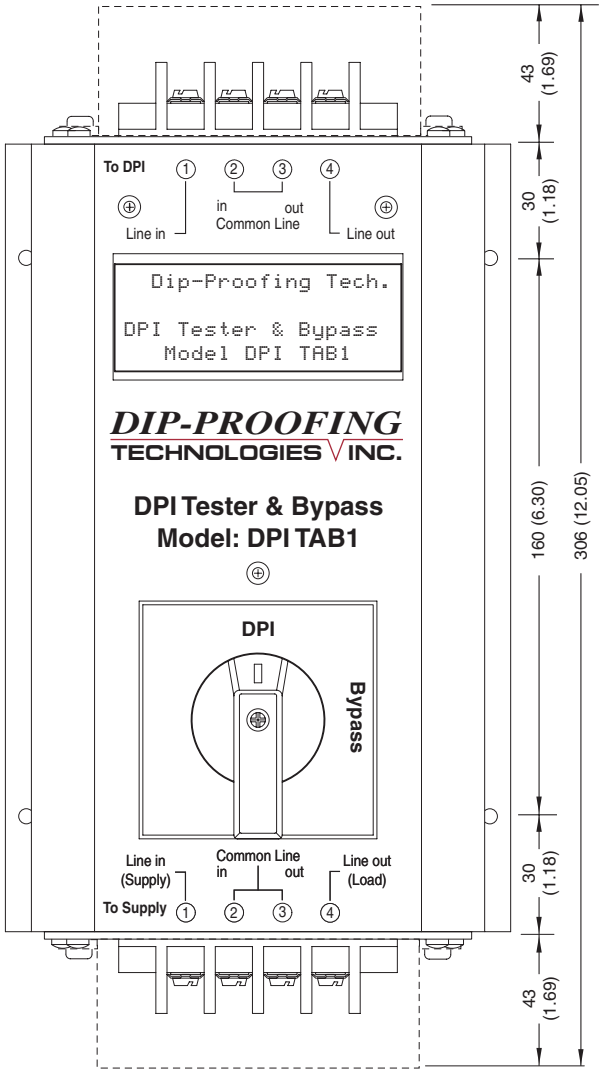
Then Run mode screen 1 & 2 will alternate every 10 seconds.

Error messages:

Displays if DPI has no output or if the DPI is no connected.



Mechanical Outline



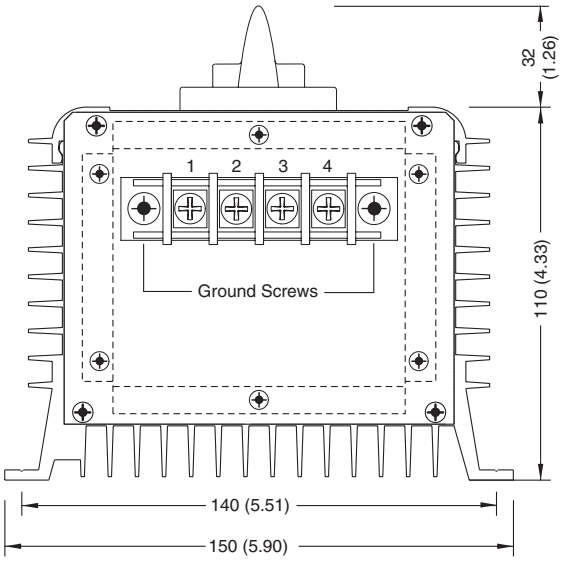


Fig 4
Dimensions of the DPI TAB1 mm (inches)

Notes:

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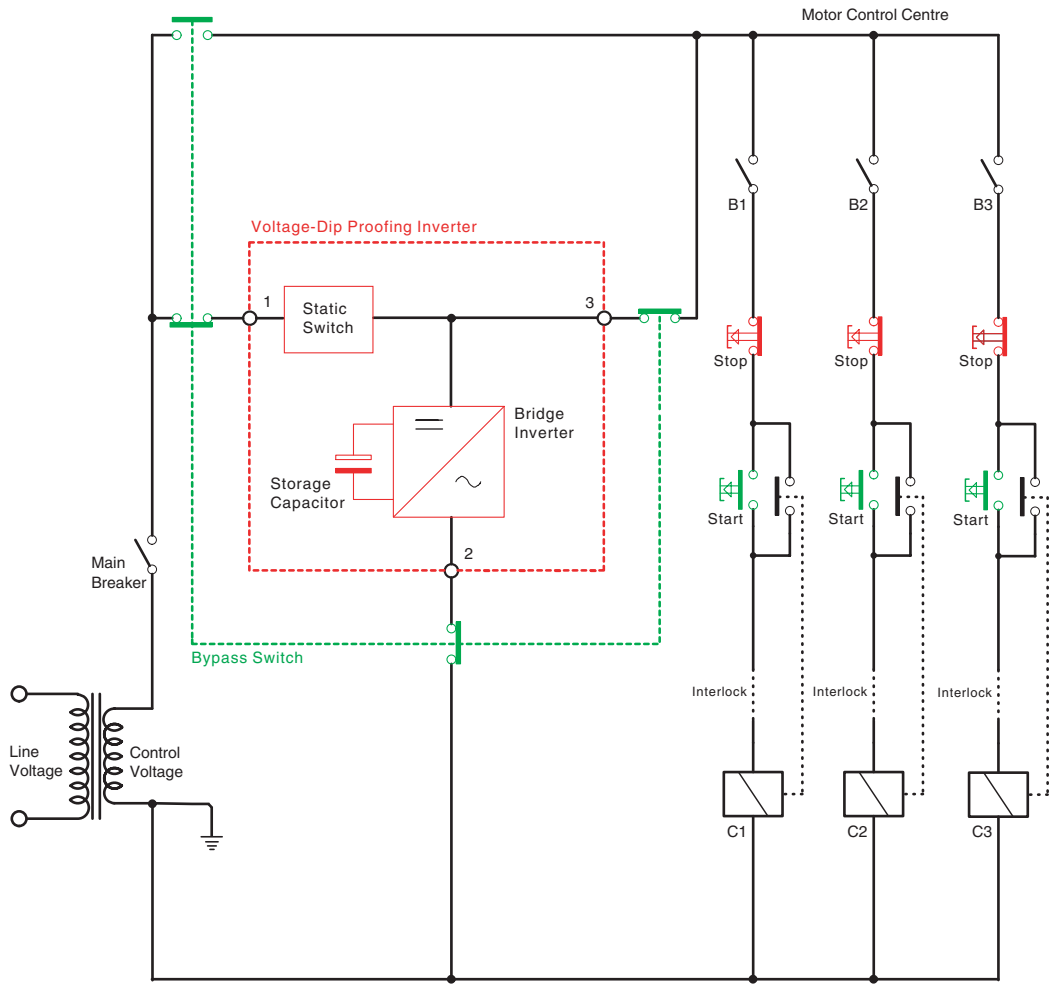

A typical DPI connection diagram

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